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1 Compiler techniques for data partitioning of sequentially iterated parallel loops 

 David E. Hudak, Santosh G. Abraham

June 1990 **ACM SIGARCH Computer Architecture News , Proceedings of the 4th international conference on Supercomputing ICS '90**, Volume 18 Issue 3b

Publisher: ACM Press

Full text available:  pdf(1.50 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper uses bottom-up, static program partitioning to minimize the execution time of parallel programs by reducing interprocessor communication. Program partitioning is applied to a parallel programming construct known as a sequentially iterated parallel loop. This paper develops and evaluates compiler techniques to automatically generate data partitions for sequentially iterated parallel loops that minimize interprocessor communication. These techniques could be included as a communica ...

2 Optimization of array accesses by collective loop transformations 

 Vivek Sarkar, Guang R. Gao

June 1991 **Proceedings of the 5th international conference on Supercomputing ICS '91**

Publisher: ACM Press

Full text available:  pdf(1.10 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

3 Automated analysis: Automatic placement of authorization hooks in the linux security modules framework 

 Vinod Ganapathy, Trent Jaeger, Somesh Jha

November 2005 **Proceedings of the 12th ACM conference on Computer and communications security CCS '05**

Publisher: ACM Press

Full text available:  pdf(252.07 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a technique for automatic placement of authorization hooks, and apply it to the Linux security modules (LSM) framework. LSM is a generic framework which allows diverse authorization policies to be enforced by the Linux kernel. It consists of a kernel module which encapsulates an authorization policy, and hooks into the kernel module placed at appropriate locations in the Linux kernel. The kernel enforces the authorization policy using hook calls. In current practice, hooks are ...

Keywords: LSM, SELinux, hook placement, static analysis

4 Unbounded page-based transactional memory

Weihaw Chuang, Satish Narayanasamy, Ganesh Venkatesh, Jack Sampson, Michael Van Biesbrouck, Gilles Pokam, Brad Calder, Osvaldo Colavini
 October 2006 **ACM SIGPLAN Notices , ACM SIGOPS Operating Systems Review , ACM SIGARCH Computer Architecture News , Proceedings of the 12th international conference on Architectural support for programming languages and operating systems ASPLOS-XII**, Volume 41 , 40 , 34 Issue 11 , 5 , 5

Publisher: ACM Press

Full text available:  pdf(242.68 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Exploiting thread level parallelism is paramount in the multicore era. Transactions enable programmers to expose such parallelism by greatly simplifying the multi-threaded programming model. Virtualized transactions (unbounded in space and time) are desirable, as they can increase the scope of transactions' use, and thereby further simplify a programmer's job. However, hardware support is essential to support efficient execution of unbounded transactions. In this paper, we introduce *Page-base* ...

Keywords: concurrency, parallel programming, transactional memory, transactions, virtual memory

5 Security analysis: Towards a formal model for security policies specification and

validation in the selinux system

Giorgio Zanin, Luigi Vincenzo Mancini

June 2004 **Proceedings of the ninth ACM symposium on Access control models and technologies SACMAT '04**

Publisher: ACM Press

Full text available:  pdf(257.36 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a formal model, called SELAC, for analyzing an arbitrary security policy configuration for the SELinux system. A security policy for SELinux is complex and large: it is made by many configuration rules that refer to the access control sub-models implemented in the system. Among the rules composing a security policy configuration, many relationships occur and it is extremely difficult to understand their overall effects in the system. Our aim is to define semantics for the con ...

Keywords: configuration, formal model, security enhanced linux

6 Interleaved parallel schemes: improving memory throughput on supercomputers

André Seznec, Jacques Lenfant

April 1992 **ACM SIGARCH Computer Architecture News , Proceedings of the 19th annual international symposium on Computer architecture ISCA '92**, Volume 20 Issue 2

Publisher: ACM

Full text available:  pdf(922.60 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

On many commercial supercomputers, several vector register processors share a global highly interleaved memory in a MIMD mode. When all the processors are working on a single vector loop, a significant part of the potential memory throughput may be wasted due to the asynchronism of the processors. In order to limit this loss of memory throughput, a SIMD synchronization mode for vector accesses to memory may be used. But an important part of the memory bandwidth may be wasted when ...

7 A microprogrammed keyword transformation unit for a database computer

 Krishnamurthi Kannan, David K. Hsiao, Douglas S. Kerr
September 1977 **ACM SIGMICRO Newsletter , Proceedings of the 10th annual workshop on Microprogramming MICRO 10**, Volume 8 Issue 3

Publisher: IEEE Press, ACM Press

Full text available:  pdf(705.09 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The design of a microprogrammable microprocessor-based keyword transformation unit for a database computer(DBC) is described. The DBC, a specialized back-end computer capable of managing 109 - 1010 bytes of data, consists of two loops of memories and processors, the structure loop and the data loop, connected through a database command and control processor (DBCCP). The structure loop is used to retrieve and update the large amount (10

8 Developing and using a "policy neutral" access control policy

 Duane Olawsky, Todd Fine, Edward Schneider, Ray Spencer
September 1996 **Proceedings of the 1996 workshop on New security paradigms NSPW '96**

Publisher: ACM Press

Full text available:  pdf(1.07 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

9 Odd memory systems may be quite interesting

André Seznec, Jacques Lenfant

May 1993 **ACM SIGARCH Computer Architecture News , Proceedings of the 20th annual international symposium on Computer architecture ISCA '93**, Volume 21 Issue 2

Publisher: ACM

Full text available:  pdf(837.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Using a prime number of N of memory banks on a vector processor allows a conflict-free access for any slice of N consecutive elements of a vector stored with a stride not multiple of N. To reject the use of a prime (or odd) number N of memory banks, it is generally advanced that address computation for such a memory system would require systematic Euclidean Division by the number N. We first show that the well known Chinese Remainder Theorem allows to define a very simple mapping ...

Keywords: Chinese remainder network, SIMD computers, prime memory systems, vector

10 Record block allocation for retrieval on secondary keys

 Chung-Shu Yang
May 1978 **ACM SIGIR Forum , Proceedings of the 1st annual international ACM SIGIR conference on Information storage and retrieval SIGIR '78**, Volume 13 Issue 1

Publisher: ACM Press

Full text available:  pdf(896.74 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Query retrieval based on secondary keys is an important operation in retrieval systems. Such a query generally retrieves more than one data record which satisfies the query criterion. This paper studies the problem of record address allocation in disk-like devices so as to facilitate the fast retrieval of a set of records which are jointly accessed by a query. A heuristic scheme, using the proposed minimal access retrieval property, is designed to assign records to blocks. Some experimental ...

11 Beyond loop partitioning: data assignment and overlap to reduce communication



overhead

David E. Hudak, Santosh G. Abraham

June 1991 **Proceedings of the 5th international conference on Supercomputing ICS '91**

Publisher: ACM Press

Full text available: pdf(1.22 MB)

Additional Information: full citation, references, index terms

12 Reducing inter-vector-conflicts in complex memory systems



A. M. del Corral, J. M. Llaberia

January 1996 **Proceedings of the 10th international conference on Supercomputing ICS '96**

Publisher: ACM Press

Full text available: pdf(1.03 MB)

Additional Information: full citation, references, index terms

13 An object oriented architecture



William J. Dally, James T. Kajiya

June 1985 **ACM SIGARCH Computer Architecture News , Proceedings of the 12th annual international symposium on Computer architecture ISCA '85**, Volume 13 Issue 3

Publisher: IEEE Computer Society Press, ACM

Full text available: pdf(829.44 KB)

Additional Information: full citation, cited by, index terms

14 Security policy analysis using deductive spreadsheets



Anu Singh, C. R. Ramakrishnan, I. V. Ramakrishnan, Scott D. Stoller, David S. Warren

November 2007 **Proceedings of the 2007 ACM workshop on Formal methods in security engineering FMSE '07**

Publisher: ACM

Full text available: pdf(3.00 MB)

Additional Information: full citation, abstract, references, index terms

As security policies get larger and more complex, analysis tools that help users understand and validate security policies are becoming more important. This paper explores the use of *deductive spreadsheets* for security policy analysis. Deductive spreadsheets combine the power of deductive rules (for specifying policies and analyses) with the usability of spreadsheets. This approach is introduced with a simple example of analyzing information flow allowed by RBAC policies and then applied i ...

Keywords: SELinux policy, security policy analysis, vulnerability analysis

15 On attaining reliable software for a secure operating system



Lawrence Robinson, Karl N. Levitt, Peter G. Neumann, Ashok R. Saxena

April 1975 **ACM SIGPLAN Notices , Proceedings of the international conference on Reliable software**, Volume 10 Issue 6

Publisher: ACM Press

Full text available: pdf(1.67 MB)

Additional Information: full citation, abstract, references, citings, index terms

This paper presents a general methodology for the design, implementation, and proof of large software systems, each described as a hierarchy of abstract machines. The design and implementation occur in five stages as described in this paper. Formal proof may take place at each stage. We expect the methodology to simplify the proof effort in such a way

as to make proof a feasible tool in the development of reliable software. In addition to the anticipated advantages in proof, we feel that th ...

Keywords: Design methodology, Formal specification, Hierarchical structure, Operating systems, Program verification, Programming methodology, Security

16 Session 4: compilers 1: Lightweight reference affinity analysis



Xipen Shen, Yaoqing Gao, Chen Ding, Roch Archambault

June 2005 **Proceedings of the 19th annual international conference on Supercomputing ICS '05**

Publisher: ACM Press

Full text available: [pdf\(354.12 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Previous studies have shown that array regrouping and structure splitting significantly improve data locality. The most effective technique relies on profiling every access to every data element. The high overhead impedes its adoption in a general compiler. In this paper, we show that for array regrouping in scientific programs, the overhead is not needed since the same benefit can be obtained by pure program analysis. We present an interprocedural analysis technique for array regrouping. For eac ...

Keywords: affinity, compiler, data interleaving, data regrouping, frequency, memory optimization

17 Increasing the number of strides for conflict-free vector access



Mateo Valero, Tomás Lang, José M. Llacería, Montse Peiron, Eduard Ayguadé, Juan J. Navarra

April 1992 **ACM SIGARCH Computer Architecture News , Proceedings of the 19th annual international symposium on Computer architecture ISCA '92**, Volume 20 Issue 2

Publisher: ACM

Full text available: [pdf\(992.82 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Address transformation schemes, such as skewing and linear transformations, have been proposed to achieve conflict-free vector access for some strides in vector processors with multi-module memories. In this paper, we extend these schemes to achieve this conflict-free access for a larger number of strides. The basic idea is to perform an out-of-order access to vectors of fixed length, equal to that of the vector registers of the processor. Both matched and unmatched memories are considered: ...

18 An efficient routing control for the SIGMA network $\Sigma^{(4)}$



A. Seznec

May 1986 **ACM SIGARCH Computer Architecture News , Proceedings of the 13th annual international symposium on Computer architecture ISCA '86**, Volume 14 Issue 2

Publisher: IEEE Computer Society Press, ACM

Full text available: [pdf\(691.48 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

When processing vectors on SIMD computers, the interconnection network may become the bottleneck for performances if it lacks an efficient routing control unit. In the past, many multistage networks have been designed, but general algorithms to control them cannot be used at execution time : they are too time consuming. This has led many manufacturers to use crossbar networks in the design of SIMD computers. In [Se84a], [Se84b], we defined the Sigma network &Sgr;(n) and ...

19 Trusted platform, channel, and storage: Linux kernel integrity measurement using contextual inspection 

Peter A. Loscocco, Perry W. Wilson, J. Aaron Pendergrass, C. Durward McDonell
November 2007 **Proceedings of the 2007 ACM workshop on Scalable trusted computing STC '07**

Publisher: ACM

Full text available:  pdf(258.39 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper introduces the Linux Kernel Integrity Monitor (LKIM) as an improvement over conventional methods of software integrity measurement. LKIM employs *contextual inspection* as a means to more completely characterize the operational integrity of a running kernel. In addition to cryptographically hashing static code and data in the kernel, dynamic data structures are examined to provide improved integrity measurement. The base approach examines structures that control the execution ...

Keywords: LKIM, attestation systems, integrity measurement, system monitoring

20 Making the fast case common and the uncommon case simple in unbounded 
 transactional memory

Colin Blundell, Joe Devietti, E. Christopher Lewis, Milo M. K. Martin
June 2007 **ACM SIGARCH Computer Architecture News , Proceedings of the 34th annual international symposium on Computer architecture ISCA '07**, Volume 35 Issue 2

Publisher: ACM Press

Full text available:  pdf(356.52 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Hardware transactional memory has great potential to simplify the creation of correct and efficient multithreaded programs, allowing programmers to exploit more effectively the soon-to-be-ubiquitous multi-core designs. Several recent proposals have extended the original bounded transactional memory to unbounded transactional memory, a crucial step toward transactions becoming a general-purpose primitive. Unfortunately, supporting the concurrent execution of an unbounded number of unbounded transact ...

Keywords: concurrency, parallel programming, transactional memory, transactions

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Relevance scale 

1 Sensor networks and performance analysis: Java™ on the bare metal of wireless



 sensor devices: the squawk Java virtual machine

Doug Simon, Cristina Cifuentes, Dave Cleal, John Daniels, Derek White

June 2006 **Proceedings of the second international conference on Virtual execution environments VEE '06**

Publisher: ACM Press

Full text available:  pdf(999 55 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

The Squawk virtual machine is a small Java™ virtual machine (VM) written mostly in Java that runs without an operating system on a wireless sensor platform. Squawk translates standard class file into an internal pre-linked, position independent format that is compact and allows for efficient execution of bytecodes that have been placed into a read-only memory. In addition, Squawk implements an application isolation mechanism whereby applications are represented as object and are therefore ...

Keywords: IEEE 802.15.4, Java virtual machine, Sun SPOT, embedded systems, wireless sensor networks

2 Improving TCP performance over wireless networks at the link layer



Christina Parsa, J. J. Garcia-Luna-Aceves

March 2000 **Mobile Networks and Applications**, Volume 5 Issue 1

Publisher: Kluwer Academic Publishers

Full text available:  pdf(324.14 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present the transport unaware link improvement protocol (TULIP), which dramatically improves the performance of TCP over lossy wireless links, without competing with or modifying the transport- or network-layer protocols. TULIP is tailored for the half-duplex radio links available with today's commercial radios and provides a MAC acceleration feature applicable to collision-avoidance MAC protocols (e.g., IEEE 802.11) to improve throughput. TULIP's timers rely on a maximum propagation delay ...

3 Efficient implementation of bit-vector operation in Common Lisp



 Henry G. Baker

April 1990 **ACM SIGPLAN Lisp Pointers**, Volume III Issue 2-4

Publisher: ACM Press

Full text available:  pdf(1.24 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

In this paper we show various techniques for the efficient implementation of the various functions of Common Lisp involving bit-vectors and bit-arrays. Bit-vectors are extremely useful for computing everything from the Sieve of Eratosthenes for finding prime numbers, to the representation of sets and relations, to the implementation of natural language parsers, to the performance of *flow analysis* in an optimizing compiler, to the manipulation of complex communication codes like those used ...

4 Optimization of polynomial datapaths using finite ring algebra



 Sivaram Gopalakrishnan, Priyank Kalla
September 2007 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 12 Issue 4

Publisher: ACM Press

Full text available:  pdf(391.96 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This article presents an approach to area optimization of arithmetic datapaths at register-transfer level (RTL). The focus is on those designs that perform polynomial computations (add, mult) over finite word-length operands (bit-vectors). We model such polynomial computations over m -bit vectors as algebra over finite integer rings of residue classes \mathbb{Z}_2^m . Subsequently, we use the number-theoretic and algebraic properties of such rings to transform a ...

Keywords: High-level synthesis, arithmetic datapaths, finite ring algebra, modulo arithmetic, polynomial datapaths

5 Speeding up the "Puzzle" Benchmark a "bit"



 Henry G. Baker
August 1992 **ACM SIGPLAN Lisp Pointers**, Volume V Issue 3

Publisher: ACM Press

Full text available:  pdf(357.98 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

We show how Baskett's "Puzzle" benchmark can be speeded up at least an order of magnitude by utilizing *bit-vectors*. Unlike many optimization techniques, the use of bit-vectors enhances the readability and understandability of the code. Since bit-vectors already utilize word-wide parallelism, it is unlikely that parallel processors will be able to solve the problem much faster.

6 Multi-resolution bitmap indexes for scientific data



 Rishi Rakesh Sinha, Marianne Winslett
August 2007 **ACM Transactions on Database Systems (TODS)**, Volume 32 Issue 3

Publisher: ACM Press

Full text available:  pdf(644.72 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The unique characteristics of scientific data and queries cause traditional indexing techniques to perform poorly on scientific workloads, occupy excessive space, or both. Refinements of bitmap indexes have been proposed previously as a solution to this problem. In this article, we describe the difficulties we encountered in deploying bitmap indexes with scientific data and queries from two real-world domains. In particular, previously proposed methods of binning, encoding, and compressing bi ...

Keywords: Query processing, bitmap index, parallel index, scientific data management

7



Scalable packet classification

Florin Baboescu, George Varghese

February 2005 **IEEE/ACM Transactions on Networking (TON)**, Volume 13 Issue 1

Publisher: IEEE Press

Full text available: [pdf\(501.73 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Packet classification is important for applications such as firewalls, intrusion detection, and differentiated services. Existing algorithms for packet classification reported in the literature scale poorly in either time or space as filter databases grow in size. Hardware solutions such as TCAMs do not scale to large classifiers. However, even for large classifiers (say, 100 000 rules), any packet is likely to match a few (say, 10) rules. This paper seeks to exploit this observation to produce ...

8 Scalable packet classification

 Florin Baboescu, George Varghese

August 2001 **ACM SIGCOMM Computer Communication Review , Proceedings of the 2001 conference on Applications, technologies, architectures, and protocols for computer communications SIGCOMM '01**, Volume 31 Issue 4

Publisher: ACM Press

Full text available: [pdf\(242.61 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Packet classification is important for applications such as firewalls, intrusion detection, and differentiated services. Existing algorithms for packet classification reported in the literature scale poorly in either time or space as filter databases grow in size. Hardware solutions such as TCAMs do not scale to large classifiers. However, even for large classifiers (say 100,000 rules), any packet is likely to match a few (say 10) rules. Our paper seeks to exploit this observation to produce a s ...

9 Secure data aggregation and transmission: Attack-resilient hierarchical data

 aggregation in sensor networks

Sankardas Roy, Sanjeev Setia, Sushil Jajodia

October 2006 **Proceedings of the fourth ACM workshop on Security of ad hoc and sensor networks SASN '06**

Publisher: ACM Press

Full text available: [pdf\(317.12 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In a large sensor network, in-network data aggregation, i.e., combining partial results at intermediate nodes during message routing, significantly reduces the amount of communication and hence the energy consumed. Recently several researchers have proposed robust aggregation frameworks, which combine multi-path routing schemes with duplicate-insensitive algorithms, to accurately compute aggregates (e.g., Sum, Count, Average) in spite of message losses resulting from node and transmission failur ...

Keywords: attack-resilient, data aggregation, hierarchical aggregation, sensor network security, synopsis diffusion

10 Secure routing: A resilient packet-forwarding scheme against maliciously packet-

 dropping nodes in sensor networks

Suk-Bok Lee, Yoon-Hwa Choi

October 2006 **Proceedings of the fourth ACM workshop on Security of ad hoc and sensor networks SASN '06**

Publisher: ACM Press

Full text available: [pdf\(358.47 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper focuses on defending against compromised nodes' dropping of legitimate

reports and investigates the misbehavior of a maliciously packet-dropping node in sensor networks. We present a resilient packet-forwarding scheme using *Neighbor Watch System* (NWS), specifically designed for hop-by-hop reliable delivery in face of malicious nodes that drop relaying packets, as well as faulty nodes that fail to relay packets. Unlike previous work with multipath data forwarding, our scheme has ...

Keywords: packet-dropping attacks, reliable delivery, secure routing, sensor network security

11 Security and correctness: Efficient data protection for distributed shared memory



Brian Rogers, Milos Prvulovic, Yan Solihin

September 2006 **Proceedings of the 15th international conference on Parallel architectures and compilation techniques PACT '06**

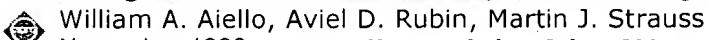
Publisher: ACM Press

Full text available: pdf(386.29 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Data security in computer systems has recently become an increasing concern, and hardware-based attacks have emerged. As a result, researchers have investigated hardware encryption and authentication mechanisms as a means of addressing this security concern. Unfortunately, no such techniques have been investigated for Distributed Shared Memory (DSM) multiprocessors, and previously proposed techniques for uni-processor and Symmetric Multiprocessor (SMP) systems cannot be directly used for DSMs. T ...

Keywords: DSM multiprocessor, data security, memory encryption and authentication

12 Using smartcards to secure a personalized gambling device



William A. Aiello, Aviel D. Rubin, Martin J. Strauss

November 1999 **Proceedings of the 6th ACM conference on Computer and communications security CCS '99**

Publisher: ACM Press

Full text available: pdf(762.94 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce a technique for using an untrusted device, such as a hand-held personal digital assistant or a laptop to perform real financial transactions without a network. We utilize the tamper-resistant nature of smartcards to store value on them and perform probabilistic computations based on user input. We discuss an application of this to gambling. The technique has the properties that the user is guaranteed to make money when he wins and the house is guaranteed to make money w ...

13 Multiplicative Window Generators of Pseudo-random Test Vectors



Janusz Rajski, Jerzy Tyszer

March 1996 **Proceedings of the 1996 European conference on Design and Test EDTC '96**

Publisher: IEEE Computer Society

Full text available: pdf(808.72 KB)

Additional Information: [full citation](#), [abstract](#), [citations](#)



New arithmetic two-dimensional generators of pseudo-random test vectors are presented. As an integral part of a recently proposed arithmetic built-in self test (ABIST) environment, all generation functions are executed by basic building blocks performing regular functions of data path architectures, yet the scheme is compatible with scan, parallel scan, partial scan and boundary scan designs. The need for extra hardware is either entirely eliminated or drastically reduced, test vectors can be ea ...

Keywords: Accumulators, Arithmetic generators, Built-in self test, Data-path architectures, Pseudo-exhaustive generators, State coverage

14 Interference of bluetooth and IEEE 802.11: simulation modeling and performance □



N. Golmie, R. E. Van Dyck, A. Soltanian

July 2001 **Proceedings of the 4th ACM international workshop on Modeling, analysis and simulation of wireless and mobile systems MSWIM '01**

Publisher: ACM Press

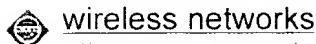
Full text available: pdf(657.91 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The emergence of several radio technologies such as Bluetooth, and IEEE 802.11 operating in the 2.4 GHz unlicensed ISM frequency band may lead to signal interference and result in significant performance degradation when devices are co-located in the same environment. The main goal of this paper is to present a simulation environment for modeling interference based on detailed MAC and PHY models. This framework is then used to evaluate the impact of interference on the performance of Bluetoot ...

Keywords: IEEE 802.11, WPANs, bluetooth, interference

15 Best student paper candidates: Improving loss resilience with multi-radio diversity in □



Allen Miu, Hari Balakrishnan, Can Emre Koksal

August 2005 **Proceedings of the 11th annual international conference on Mobile computing and networking MobiCom '05**

Publisher: ACM Press

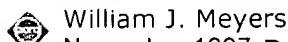
Full text available: pdf(1.26 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes the Multi-Radio Diversity (MRD) wireless system, which uses path diversity to improve loss resilience in wireless local area networks (WLANs). MRD coordinates wireless receptions among multiple radios to improve loss resilience in the face of path-dependent frame corruption over the radio. MRD incorporates two techniques to recover from bit errors and lower the loss rates observed by higher layers, without consuming much extra bandwidth. The first technique is frame combining ...

Keywords: bit-error, frame combining, packet combining, path diversity, performance, wireless LAN, wireless networks

16 RBAC emulation on trusted DG/UX □



William J. Meyers

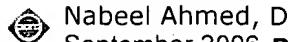
November 1997 **Proceedings of the second ACM workshop on Role-based access control RBAC '97**

Publisher: ACM Press

Full text available: pdf(764.52 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

17 Applications: GUESS: gossiping updates for efficient spectrum sensing □



Nabeel Ahmed, David Hadaller, Srinivasan Keshav

September 2006 **Proceedings of the 1st international workshop on Decentralized resource sharing in mobile computing and networking MobiShare '06**

Publisher: ACM Press

Full text available:  pdf(614.52 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Wireless radios of the future will likely be frequency-agile, that is, supporting opportunistic and adaptive use of the RF spectrum. Such radios must coordinate with each other to build an accurate and consistent map of spectral utilization in their surroundings. We focus on the problem of sharing RF spectrum data among a collection of wireless devices. The inherent requirements of such data and the time-granularity at which it must be collected makes this problem both interesting and technical ...

Keywords: FM aggregation, coordinated spectrum sensing, gossip protocols, incremental algorithms

18 A hierarchical approach to position-based multicast for mobile ad-hoc networks



Matthias Transier, Holger Füßler, Jörg Widmer, Martin Mauve, Wolfgang Effelsberg

August 2007 **Wireless Networks**, Volume 13 Issue 4

Publisher: Kluwer Academic Publishers

Full text available:  pdf(3.07 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper we present Scalable Position-Based Multicast (SPBM), a multicast routing protocol for ad-hoc networks. SPBM uses the geographic position of nodes to provide a highly scalable group membership scheme and to forward data packets in a way that is very robust to changes in the topology of the network. SPBM bases the forwarding decision on whether or not there are group members located in a given direction, allowing a hierarchical aggregation of membership information. The farther aw ...

Keywords: ad-hoc networks, group management, multicast, position-based routing

19 Level set and PDE methods for computer graphics



 David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker

August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**

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Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

20 Cryptography and data security



Dorothy Elizabeth Robling Denning

January 1982 Book

Publisher: Addison-Wesley Longman Publishing Co., Inc.

Full text available:  pdf(19.47 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

From the Preface (See Front Matter for full Preface)

Electronic computers have evolved from exiguous experimental enterprises in the 1940s to prolific practical data processing systems in the 1980s. As we have come to rely on these systems to process and store data, we have also come to wonder about their ability to protect valuable data.

Data security is the science and study of methods of protecting data in computer and communication systems from unauthorized disclosure ...

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